

AMENDMENTS TO THE CLAIMS

Listing of claims:

This listing of claims replaces all prior versions and listings of claims in the application.

Claims 1-18 (canceled)

Claim 19 (currently amended): A vaporizer that supplies a vaporized liquid substance to a CVD film deposition device, comprising:

an atomization section which sprays a gas/liquid mixture substance consisting of a mixture of a liquid substance which comprises a liquid organometal or an organometal solution and a carrier gas, from an end portion of a transfer conduit; and

a vaporization section which vaporizes said sprayed liquid substance, wherein:

said transfer conduit is made as a double conduit comprising an internal conduit in which the liquid substance is transferred as a gas/liquid two phase flow and an external conduit into which said internal conduit is inserted keeping a space therebetween and which is provided in order to transfer gas for atomization, the gas for atomization flowing into a first end of the external conduit, through the space, and exiting a second end of the external conduit remote from the first end;

an orifice member provided nearer to said second end than to said first end, in which an aperture portion is formed into which said internal conduit is inserted keeping a gap therebetween and the gas for atomization which has been transferred by said external conduit is

spouted into said vaporization section through said gap, is provided at an end portion of said internal conduit;

the vaporizer further comprises a nozzle ring which is provided at a tip of said atomization section in a vicinity of said end portion of said internal conduit, and upon which a vaporization surface is formed which prevents the liquid substance which has been vaporized from re-condensing; and

a cooling member is provided around said transfer conduit in contact with said external conduit and extends to around the end portion of said transfer conduit.

Claim 20 (previously presented): A vaporizer according to Claim 19, wherein

said orifice member is made from PEEK (polyether ether ketone) and is sandwiched between said nozzle ring and a tip of said external conduit, and a seal member made from PTFE (polytetrafluoroethylene) is disposed between said orifice member and said tip of said external conduit.

Claim 21 (original): A vaporizer according to Claim 20, wherein

said nozzle ring comprises a first member which is engaged with the tip of said atomization section by screwing, and a second member which is provided separately from said first member and is sandwiched between said orifice member and said first member.

Claim 22 (previously presented): A vaporizer that supplies a vaporized liquid substance to a CVD film deposition device, comprising:

an atomization section which sprays a gas/liquid mixture substance consisting of a mixture of a liquid substance which comprises a liquid organometal or an organometal solution and a carrier gas, from an end portion of a transfer conduit; and

a vaporization section which vaporizes said sprayed liquid substance, wherein:

said transfer conduit is made as a double conduit comprising an internal conduit in which the liquid substance is transferred as a gas/liquid two phase flow and an external conduit into which said internal conduit is inserted keeping a space therebetween and which transfers gas for atomization;

an orifice member, in which an aperture portion is formed into which said internal conduit is inserted keeping a gap therebetween and the gas for atomization which has been transferred by said external conduit is spouted into said vaporization section through said gap, is provided at an end portion of said internal conduit; and

the vaporizer further comprises a nozzle ring which is fixed to said vaporization section in a vicinity of said end portion of said internal conduit, and upon which a vaporization surface is formed which prevents the liquid substance which has been vaporized from re-condensing, wherein

said orifice member is made from PEEK (polyether ether ketone) and is sandwiched between said nozzle ring and a tip of said external conduit, and a seal member made from PTFE

(polytetrafluoroethylene) is disposed between said orifice member and said tip of said external conduit.

Claim 23 (original): A vaporizer according to Claim 19, further comprising:

as a coupling which fixes said internal conduit to said atomization section, a gasket type seal coupling which comprises a metal gasket and a pair of coupling members which are provided so as to sandwich said metal gasket between them, wherein

one of said pair of coupling members is fixed to said atomization section while the other of said pair of coupling members is fixed to said internal conduit, and an amount of projection of the end portion of said internal conduit from said orifice member can be adjusted by adjusting an amount of screwing in an axial direction of said gasket type seal coupling.

Claims 24-29 (canceled)

Claim 30 (previously presented): A vaporizer according to Claim 19, wherein

said nozzle ring is kept at a high temperature so as to prevent the liquid substance which has been vaporized from re-condensing.

Claim 31 (previously presented): A vaporizer that supplies a vaporized liquid substance to a CVD film deposition device, comprising:

an atomization section which sprays a gas/liquid mixture substance consisting of a mixture of a liquid substance which comprises a liquid organometal or an organometal solution and a carrier gas, from an end portion of a transfer conduit; and

a vaporization section which vaporizes said sprayed liquid substance, wherein:

said transfer conduit is made as a double conduit comprising an internal conduit in which the liquid substance is transferred as a gas/liquid two phase flow and an external conduit into which said internal conduit is inserted keeping a space therebetween and which transfers gas for atomization; and

an orifice member, in which an aperture portion is formed into which said internal conduit is inserted keeping a gap therebetween and the gas for atomization which has been transferred by said external conduit is spouted into said vaporization section through said gap, is provided at an end portion of said internal conduit,

wherein said vaporizer further comprises:

as a coupling which fixes said internal conduit to said atomization section, a gasket type seal coupling which comprises a metal gasket and a pair of coupling members which are provided so as to sandwich said metal gasket between them, wherein

one of said pair of coupling members is fixed to said atomization section while the other of said pair of coupling members is fixed to said internal conduit, and an amount of projection of the end portion of said internal conduit from said orifice member can be adjusted by adjusting an amount of screwing in an axial direction of said gasket type seal coupling.

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Claim 32 (canceled)

Claim 33 (Previously presented): A vaporizer according to claim 19, wherein the gas for atomization enters the vaporizer and meets a junction of a first path, which leads to the orifice member, and a second path, which leads to a terminating end, and the cooling member is provided around the first path.

Claim 34 (previously presented): A vaporizer according to claim 19, wherein the cooling member and the external conduit are members different from each other.